**Opportunity Title:** Development of Peptide-based Biorecognition Reagents
**Opportunity Reference Code:** ARL-C-SEDD-300063

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| **Organization** | DEVCOM Army Research Laboratory |
| **Reference Code** | ARL-C-SEDD-300063 |
| **Description** | **About the Research** |

A research opportunity is available in the Biotechnology Branch at CCDC Army Research Laboratory (ARL) in Adelphi, MD.

A major challenge in the development of robust biosensors lies within the limitations of using monoclonal antibodies, the current industry standard, as biorecognition elements. While these antibodies tend to exhibit high affinities and selectivities for targets of interest, their poor chemical and thermal stabilities, and extensive discovery and manufacturing processes, make antibodies ineffective as on-demand reagents for biodetection outside of controlled environments. Conversely, peptide-based reagents, such as those discovered through the Protein Catalyzed Capture (PCC) method, are promising alternatives to antibodies due to their extreme stabilities and ease of scale-up.

The objectives of this project are to aide in the development of such peptide-based biorecognition reagents. Potential protein targets include those associated with biodefense, health, and food and water safety. One-Bead-One-Compound (OBOC) synthetic peptide libraries will be utilized in conjunction with in situ click chemistry for reagent discovery. The work will also include the standardization of characterization methods for SPR, Luminex, and ELISA.

The initial appointment is for 12 months, but may be renewed upon recognition of CCDC ARL contingent on the availability of funds. The participant will receive a monthly stipend commensurate with educational level and experience. The appointment is full-time at CCDC ARL in the Adelphi, MD area.

*ARL Advisor:* Matthew Coppock

*ARL Advisor Email:* matthew.b.coppock.civ@mail.mil

**About SEDD**

The Sensors and Electron Devices Directorate (SEDD) is the Army's principal center for research and development in the exploration and exploitation of the electromagnetic spectrum, which includes radio frequency, microwave, millimeter-wave, infrared (IR), visible, and audio regions. SEDD is responsible for advances in laser sources, RF sources, IR sensors, signature detection and decoding, target imaging and its interpretation, fusion of data derived from several sensors, and electromagnetic protection.

In addition, SEDD is responsible for improving the technology base for electron devices and materials related to sensors and power devices. Research is conducted in related aspects of physics, electrical engineering,
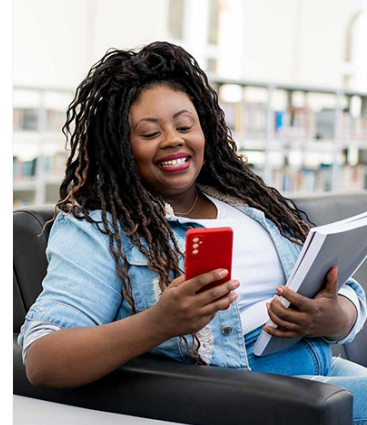
computer science, solid-state physics, chemical engineering, material sciences, and electrochemistry.

**About ARL-RAP**

The [Army Research Laboratory Research Associateship Program](#) (ARL-RAP) is designed to significantly increase the involvement of creative and highly trained scientists and engineers from academia and industry in scientific and technical areas of interest and relevance to the Army. Scientists and Engineers at the CCDC Army Research Laboratory (ARL) help shape and execute the Army's program for meeting the challenge of developing technologies that will support Army forces in meeting future operational needs by pursuing scientific research and technological developments in diverse fields such as: applied mathematics, atmospheric characterization, simulation and human modeling, digital/optical signal processing, nanotechnology, material science and technology, multifunctional technology, combustion processes, propulsion and flight physics, communication and networking, and computational and information sciences.

**A complete application includes:**

- **Curriculum Vitae or Resume**
- **Three References Forms**
    - An email with a link to the reference form will be available in Zintellect to the applicant upon completion of the on-line application. Please send this email to persons you have selected to complete a reference.
    - References should be from persons familiar with your educational and professional qualifications (include your thesis or dissertation advisor, if applicable)
- **Transcripts**
    - Transcript verifying receipt of degree must be submitted with the application. Student/unofficial copy is acceptable

If selected by an advisor the participant will also be required to write a **research proposal** to submit to the ARL-RAP review panel for :

- Research topic should relate to a specific opportunity at ARL (see [Research Areas](#))
- The objective of the research topic should be clear and have a defined outcome
- Explain the direction you plan to pursue
- Include expected period for completing the study
- Include a brief background such as preparation and motivation for the research
- References of published efforts may be used to improve the proposal

A link to upload the proposal will be provided to the applicant once the advisor has made their selection.

**Questions about this opportunity?** Please email

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ARLFellowship@orau.org

**Eligibility Requirements**

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree.
- **Academic Level(s):** Any academic level.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (4 👁)
  - **Life Health and Medical Sciences** (1 👁)